

Attorney Docket No. 06816-035003  
Application No. 09/825,875  
Amendment dated November 3, 2003  
Reply to Office Action dated August 6, 2003

Amendment to the Specification:

Please replace the paragraph beginning on page 17, line 5 with the following:

The photocarriers will be assumed throughout this specification to be formed by electrons. The un-excited electron is at ground state 450, and can be excited to excited state 452. The resulting energy level is shown in Figure 4, where the horizontal axis 400 of the diagram indicates energy; the vertical axis 402 408 is a spatial dimension along the growth axis  $z$  (i.e., the thickness) of the quantum well.

Please replace the paragraph beginning on page 17, line 13 with the following:

Quantum wells 406, 408 405 are formed as thin well layers of GaAs, 306, 310, between the two neighboring barrier layers of  $\text{Al}_x\text{Ga}_{1-x}\text{As}$  307, 308, 309. The GaAs thickness forms the well width. Each quantum well 406, 408 is shown with a square shape based on the band gap of the  $\text{Al}_x\text{Ga}_{1-x}\text{As}$  barrier layers being larger than that of the GaAs well layer. The band gap of  $\text{Al}_x\text{Ga}_{1-x}\text{As}$ , and thus the well depth, is precisely controlled by varying the Al mole fraction ( $x$ ). The thicknesses of the GaAs 306 and  $\text{Al}_x\text{Ga}_{1-x}\text{As}$  307, 308, 309 layers determine, respectively, the width of the quantum wells and the spatial distance between wells.

Attorney Docket No. 06816-035003  
Application No. 09/825,875  
Amendment dated November 3, 2003  
Reply to Office Action dated August 6, 2003

Preferably the material forming the wells 406, 408 is an order of magnitude thinner than the material forming the barrier 308.